

# SCIENCE

# And Technology Program



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The Chinese mitten crab invaded the Central Valley, California, as early as 1994, and populations exploded in 1998. Adult crabs leave up-river freshwater habitats in fall and migrate towards the ocean to spawn. Knowledge of the crab's biology is quite limited, however. Masses of crabs (thousands per day) clogged fish protection facilities at major water intakes in 1998, calling for rapid development of methods to separate crabs from fish. The problem is to remove crabs from inflowing water but allow fish to continue downstream to fish collection and transport facilities.

- Develop new technology for removing crabs from inflows at fish protection facilities while allowing incoming fish to continue through the facilities into fish holding chambers and fish transport systems
- Expand information on the biology and local movements of mitten crabs
- Assess the potential threats to water facilities located on rivers connected to the ocean in western states

A traveling "fish friendly" mitten crab removal screen was successfully developed and tested in an experimental flume at the Denver hydraulics labs. Male crabs from the Tracy Facility were shipped to Denver and tested along with selected species of fish. Based on these results, a large traveling screen was designed, constructed, and installed at the Tracy Facility in August 1999. Early operations indicate a high rate of success in crab removal and fish passage. Extensive collection of data in FY 2000 will provide a complete assessment, with anticipation of approval to install the screen again for the fall, 2000, crab season. A contract with the California Department of Fish and Game was completed for studies on the migratory behavior of mitten crabs. Also, a contract was completed with the San Francisco Estuary Institute for assessment of future threats to water facilities by crab invasions into all western coastal states.

Reclamation Mid-Pacific Region and Tracy Projects Office  
San Luis Delta-Mendota Water Authority  
California Department of Fish and Game  
San Francisco Estuary Institute

USGS - Montana Cooperative Research Unit

Mefford, Brent, and L. Hanna. 1999. Specifications for construction of a mitten crab screen for the Tracy Fish Collection Facility. USBR Denver Technical Service Center.

White, Robert, et al. In Progress. Fisheries and engineering evaluation of the mitten crab removal traveling screen at the Tracy Fish Collection Facility, California, with recommendations for future operations. USBR Denver Technical Service Center and Mid-Pacific Region.